DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	MOORE RESERVOIR, STN A	Lake Area (ha):	1412.35
Town:	LITTLETON	Maximum depth (m):	44.8
County:	Grafton	Mean depth (m):	15.7
River Basin:	Connecticut	Volume (m^3):	222000000
Latitude:	44°20'27" N	Relative depth:	1.1
Longitude:	71°51'37" W	Shore configuration:	3.72
Elevation (ft):	700	Areal water load (m/yr):	136.0
Shore length (m):	49600	Flushing rate (yr^{-1}):	8.70
Watershed area (ha):	421132.1	P retention coeff.:	0.16
% watershed ponded:	---	Lake type:	artificial

BIOLOGICAL:		14 February 1994	10 August 1993
DOM. PHYTOPLANKTON (% TOTAL)	#1	SPARSE - NO DOMINANT	TABELLARIA 35%
	#2		NOSTOC 30%
	#3		ASTERIONELLA 15%
PHYTOPLANKTON ABUNDANCE (cells/mL)			410
CHLOROPHYLL-A (µg/L)			3.95
DOM. ZOOPLANKTON (% TOTAL)	#1	SPARSE - NO DOMINANT	POLYARTHRA 33%
	#2		KERATELLA 18%
	#3		KELLICOTTIA 14%
ROTIFERS/LITER		4	36
MICROCRUSTACEA/LITER		2	7
ZOOPLANKTON ABUNDANCE (#/L)		6	49
VASCULAR PLANT ABUNDANCE			Sparse
SECCHI DISK TRANSPARENCY (m)			3.2
BOTTOM DISSOLVED OXYGEN (mg/L)		11.3	6.2
BACTERIA (E. coli, #/100 ml)	#1		< 1
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 25.0
Hypolimnion volume (m^3) : 15498500
Anoxic volume (m^3) : None

CHEMICAL:

Lake: MOORE RESERVOIR, STN A
Town: LITTLETON

	14 February 1994		10 August 1993		
DEPTH (m)	8.0	16.0	9.0	24.0	31.0
pH (units)	6.7	6.9	7.4	6.6	6.4
A.N.C. (Alkalinity)	13.0	13.6	16.8	12.9	8.7
NITRATE NITROGEN	0.34	0.24	0.09		0.28
TOTAL KJELDAHL NITROGEN	0.16	0.16	0.33	0.26	0.28
TOTAL PHOSPHORUS	0.016	0.010	0.007	0.033	0.013
CONDUCTIVITY (μmhos/cm)	59.4	57.8	62.4	49.9	43.4
APPARENT COLOR (cpu)	33	30	27	39	48
MAGNESIUM			1.10		
CALCIUM			6.3		
SODIUM			3.5		
POTASSIUM			0.76		
CHLORIDE	3	3	4		< 3
SULFATE	6	6	5		4
TN : TP	31	40	60		43
CALCITE SATURATION INDEX			1.9		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1993

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
0	2	0	0	2	Oligo.

COMMENTS:

1. This is an impoundment of the Connecticut River above Moore Dam, a hydroelectric facility built in 1956. The dam was built at what was previously known as Fifteen Mile Falls, and the reservoir was originally called Fifteen Mile Falls impoundment and Littleton Reservoir.

2. The reservoir was previously surveyed and classified in 1979. There was a dramatic improvement in water quality between the two dates, moving the reservoir from a eutrophic to an oligotrophic rating. The most dramatic change was in the algae (chlorophyll) level, declining from 32 and 23 to 4 and 4.5 mg/m^3 at Stations A and B respectively.

3. The reservoir was subject to numerous upstream municipal and industrial point discharges from both New Hampshire and Vermont. Improved treatment processes has resulted in dramatically improved water quality.

4. See Station B for additional comments.

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	MOORE RESERVOIR, STN B	Lake Area (ha):	1412.35
Town:	LITTLETON	Maximum depth (m):	44.8
County:	Grafton	Mean depth (m):	15.7
River Basin:	Connecticut	Volume (m^3):	222000000
Latitude:	44°20'27" N	Relative depth:	1.1
Longitude:	71°51'37" W	Shore configuration:	3.72
Elevation (ft):	700	Areal water load (m/yr):	136.3
Shore length (m):	49600	Flushing rate (yr^{-1}):	8.70
Watershed area (ha):	421132.1	P retention coeff.:	0.16
% watershed ponded:	---	Lake type:	artificial

BIOLOGICAL:		14 February 1994	10 August 1993
DOM. PHYTOPLANKTON (% TOTAL)	#1	SPARSE - NO DOMINANT	TABELLARIA 40%
	#2		ASTERIONELLA 30%
	#3		NOSTOC 20%
PHYTOPLANKTON ABUNDANCE (cells/mL)			475
CHLOROPHYLL-A (µg/L)			4.54
DOM. ZOOPLANKTON (% TOTAL)	#1	NO ZOOPLANKTON	POLYARTHRA 25%
	#2	OBSERVED	KERATELLA 20%
	#3		
ROTIFERS/LITER		<1	49
MICROCRUSTACEA/LITER		<1	10
ZOOPLANKTON ABUNDANCE (#/L)		<1	65
VASCULAR PLANT ABUNDANCE			Sparse
SECCHI DISK TRANSPARENCY (m)			2.4
BOTTOM DISSOLVED OXYGEN (mg/L)		11.0	4.0
BACTERIA (E. coli, #/100 ml)	#1		< 1
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

not stratified

Depth of thermocline (m): None
Hypolimnion volume (m^3) : None
Anoxic volume (m^3) : None

CHEMICAL: **Lake: MOORE RESERVOIR, STN B**
Town: LITTLETON

	14 February 1994		10 August 1993		
DEPTH (m)	10.0	20.0	7.0		14.0
pH (units)	6.8	6.8	7.0		7.0
A.N.C. (Alkalinity)	14.0	13.5	16.8		19.1
NITRATE NITROGEN	0.33	0.24	0.09		0.13
TOTAL KJELDAHL NITROGEN	0.17	0.16	0.37		0.42
TOTAL PHOSPHORUS	0.016	0.009	0.009		0.018
CONDUCTIVITY (µmhos/cm)	61.7	55.6	60.7		64.7
APPARENT COLOR (cpu)	29	34	36		44
MAGNESIUM			1.12		
CALCIUM			6.2		
SODIUM			3.4		
POTASSIUM			0.72		
CHLORIDE	4	4	4		4
SULFATE	6	6	5		6
TN : TP	31	44	51		31
CALCITE SATURATION INDEX			2.3		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1993

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	3	0	1	4	Oligo.

COMMENTS:

1. Depth soundings were not taken in 1993. The bathymetric chart is based on the 1979 soundings.
2. The dominant wholewater phytoplankton were Chroomonas (50%) and Anabaena (20%) at Station A, and Chroomonas (50%) and Anabaena (15%) at Station B. Diatoms dominated the net phytoplankton at both stations, although filamentous blue-greens were also common.
3. See Station B for additional comments.

FIELD DATA SHEET

LAKE: MOORE RESERVOIR, STN A TOWN: LITTLETON
DATE: 08/10/93 WEATHER: PARTLY CLOUDY; LT. BREEZE; 80F

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	23.2	9.2	107 %
	1.0	23.0	9.2	107 %
	2.0	22.5	8.6	97 %
	3.0	22.5	8.6	97 %
	4.0	22.2	8.0	92 %
	5.0	22.0	8.0	92 %
	6.0	22.0	7.9	89 %
	7.0	21.9	7.8	86 %
	8.0	21.5	6.6	73 %
	9.0	21.0	6.3	70 %
	11.0	21.0	6.3	70 %
	12.0	21.0	5.9	65 %
	13.0	20.5	6.4	70 %
	14.0	20.2	6.1	67 %
	15.0	20.0	5.5	60 %
	16.0	19.8	5.8	58 %
	17.0	19.2	5.5	59 %
	19.0	18.0	5.2	55 %
	21.0	15.5	5.9	57 %
	23.0	14.0	6.2	60 %
	24.0	12.5	6.2	57 %
	25.0	11.4	6.1	55 %
	26.0	10.6	6.3	55 %
	27.0	10.0	6.2	55 %
	28.0	8.2	6.0	51 %
	30.0	7.0	6.1	50 %
	35.0	6.5	6.2	50 %

SECCHI DISK (m): 3.2 COMMENTS:
BOTTOM DEPTH (m): 38.1
TIME: 1100

*Dissolved oxygen values are in mg/L

FIELD DATA SHEET

LAKE: MOORE RESERVOIR, STN B TOWN: LITTLETON
DATE: 08/10/93 WEATHER: PARTLY CLOUDY & BREEZY; 80'S

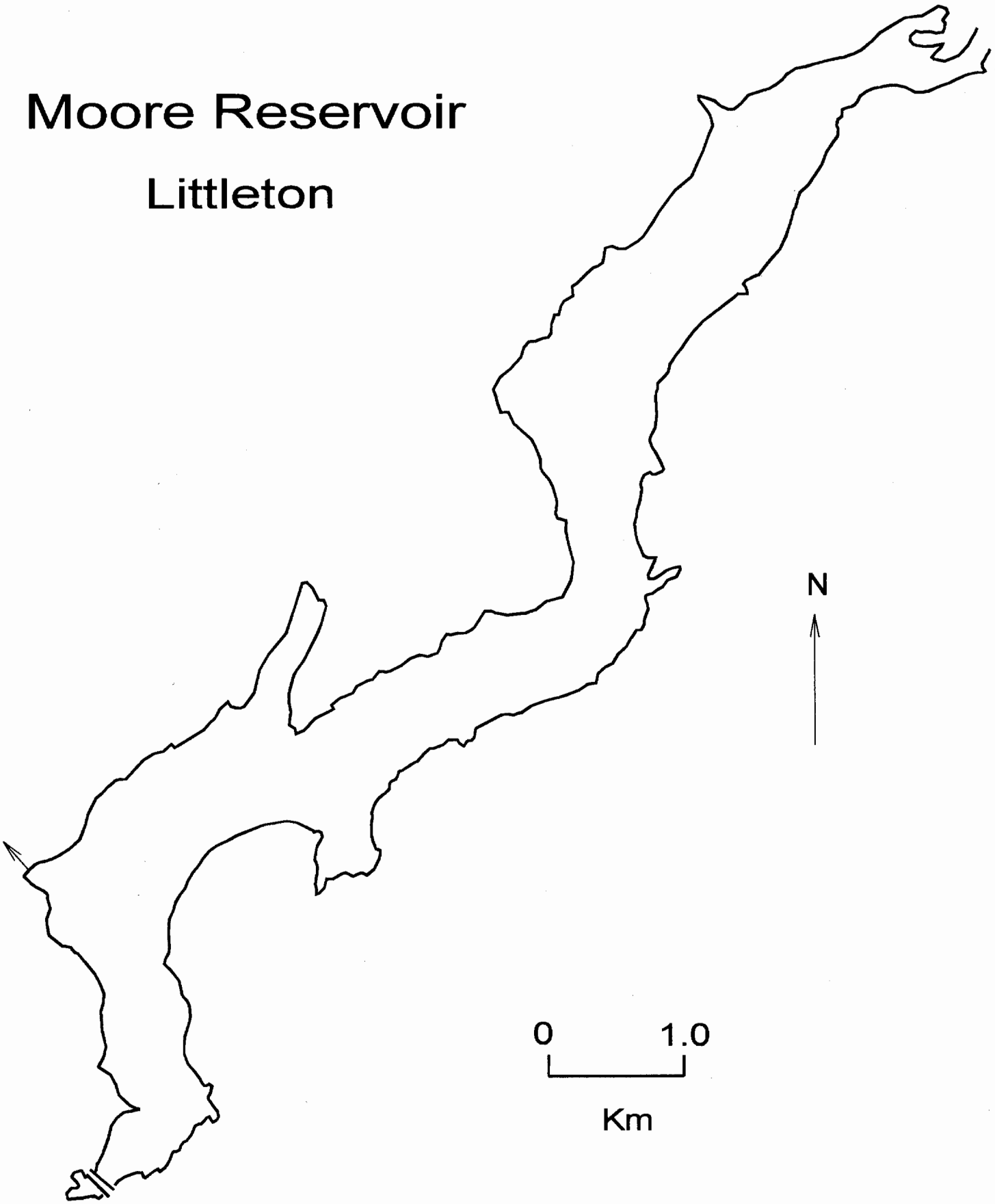
	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	24.0	9.0	107 %
	1.0	23.5	8.9	102 %
	2.0	23.0	9.3	108 %
	3.0	23.0	8.5	98 %
	4.0	22.2	7.8	88 %
	5.0	22.0	7.1	81 %
	6.0	22.0	6.9	78 %
	7.0	21.5	6.9	76 %
	8.0	21.5	6.5	72 %
	9.0	21.0	6.6	73 %
	10.0	21.0	6.3	70 %
	11.0	21.0	6.5	72 %
	12.0	20.5	6.2	68 %
	13.0	20.5	6.5	71 %
	14.0	20.0	6.2	68 %
	15.0	19.5	5.9	62 %
	16.0	19.5	6.1	66 %
	17.0	19.0	5.9	62 %
	18.0	19.0	5.7	61 %
	19.0	19.0	5.5	59 %
	20.0	18.5	5.3	56 %
	21.0	18.0	4.0	42 %

SECCHI DISK (m): 2.4 COMMENTS:
BOTTOM DEPTH (m): 22.0
TIME: 1215

*Dissolved oxygen values are in mg/L

Moore Reservoir

Littleton



AQUATIC PLANT SURVEY

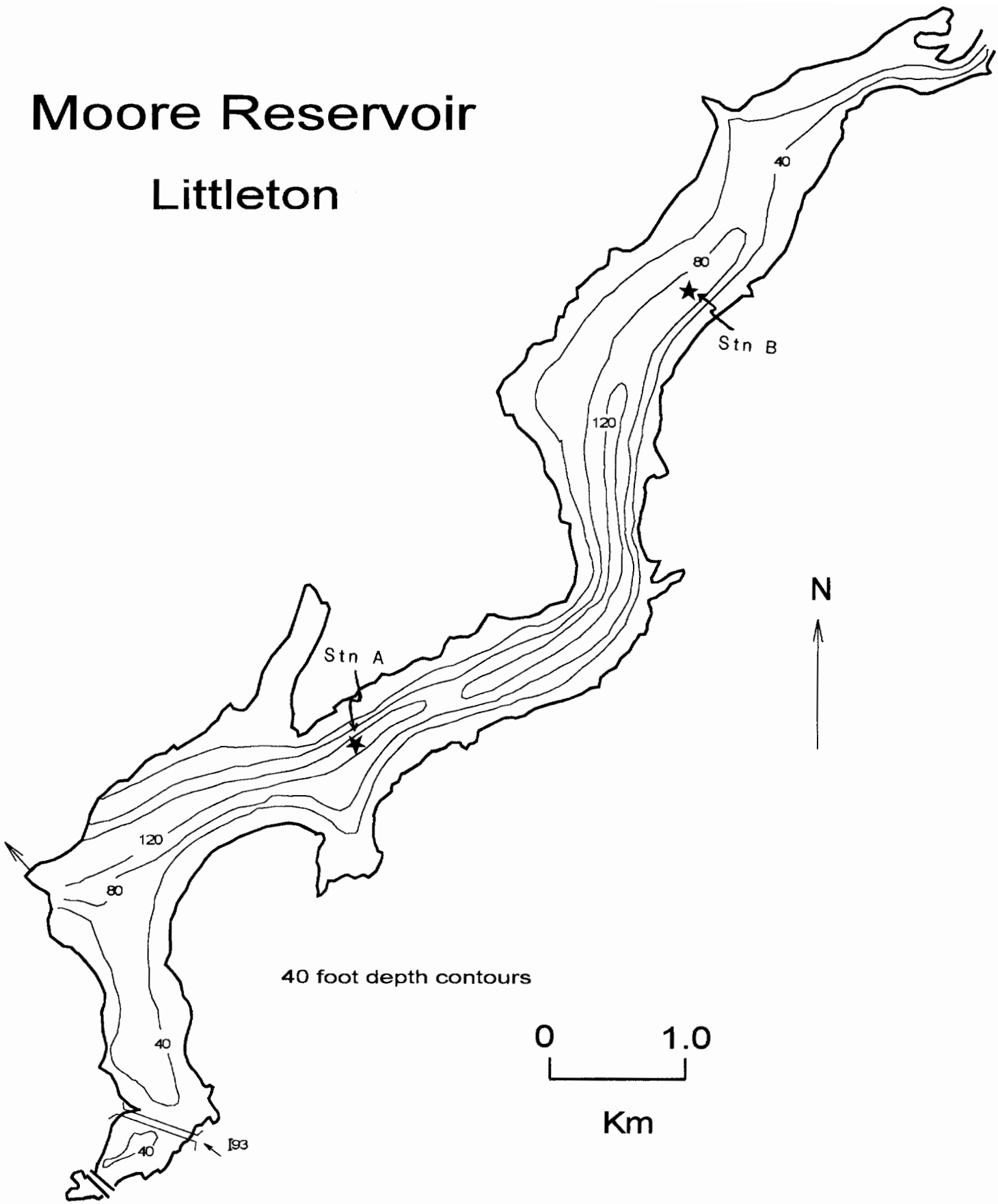
LAKE: MOORE RESERVOIR TOWN: LITTLETON DATE: 08/10/93

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	

OVERALL ABUNDANCE: Sparse

GENERAL OBSERVATIONS:

1. A formal plant survey was not conducted in 1993 but no plants were observed. A survey of the entire shoreline in 1979 revealed no plants. The reservoir is subject to substantial fluctuations in water level, resulting in conditions hostile to rooted plant growth.


Moore Reservoir
Littleton
40
80
Stn B
120
N
Stn A
120
80
40 foot depth contours
40
0
1.0
Km
40
I93

MOORE RESERVOIR